

WE CLAIM:

1 1. A hypodermic syringe comprising:
2 a hollow body adapted to hold a liquid and having an
3 axially outwardly open end;
4 an inner cap fitted over the body end;
5 an axially extending needle seated in the inner cap and
6 having an outer point projecting axially outward from the inner
7 cap and an inner point projecting axially inward from the inner
8 cap toward the body;
9 a washer between the inner cap and the body end, having
10 a central hole into which the inner point of the needle engages,
11 and provided with a membrane closing the hole and spaced axially
12 inward from the inner point;
13 an outer cap fittable over the inner cap and needle;
14 a clamp ring engageable around the inner cap;
15 a frangible web connecting the ring to the outer cap;
16 and
17 interengaging formations on the ring and on the inner
18 cap for releasably retaining the outer cap in an outer position
19 spaced axially outward of the body and in which an interior of
20 the outer cap is open to the exterior and an inner position
21 spaced axially closely to the body and in which the interior of
22 the outer cap is not open to the exterior.

1 2. The hypodermic syringe defined in claim 1, further
2 comprising

3 a liner cup inside the outer cap, receiving the outer
4 point of the needle, and clamped in the inner position between
5 the outer cap and the inner cup.

1 3. The hypodermic syringe defined in claim 2 wherein
2 the liner cup is of rubber.

1 4. The hypodermic syringe defined in claim 2 wherein
2 the inner cup is formed with a central outwardly extending
3 projection from which the needle extends axially outward and that
4 fits snugly in the liner cup in the inner position.

1 5. A method of making a hypodermic syringe comprising
2 the steps of:

3 filling a hollow syringe body having an axially
4 outwardly open end with a liquid medicament;

5 fitting an inner cap having an axially extending needle
6 having an outer point projecting axially outward from the inner
7 cap and an inner point projecting axially inward from the inner
8 cap over the body end and fitting between the inner cap and the
9 body end a washer having a central hole into which the inner
10 point of the needle engages and provided with a membrane closing
11 the hole and spaced axially inward from the inner point;

12 thereafter fitting over the inner cap and needle a
13 protector comprising an outer cap, a clamp ring, and a frangible
14 web connecting the ring to the outer cap in an outer position
15 spaced axially outward of the body and in which an interior of
16 the outer cap is open to the exterior;

17 thereafter introducing a gaseous sterilizing agent from
18 the exterior into the interior of the outer cap; and

19 thereafter shifting the outer cap, clamp ring, and web
20 axially inward into an inner position spaced axially closely to
21 the body and in which the interior of the outer cap is not open
22 to the exterior.

1 6. The manufacturing method defined in claim 5 wherein
2 the body is cleaned and siliconized before being filled.

1 7. The manufacturing method defined in claim 5 wherein
2 the body is filled without bubbles.